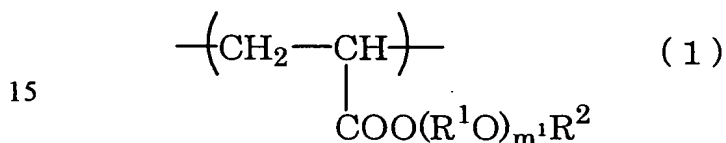


## CLAIMS

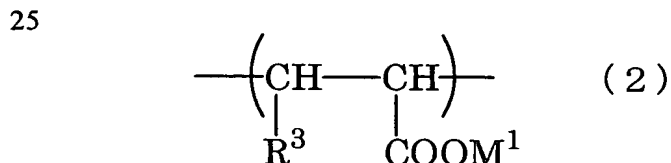
1. A polycarboxylic acid cement dispersant  
 which provides a cement composition having a penetration  
 resistance value exponent of 55 MPa or more and a slump retention  
 5 exponent of 80% or more.

2. The polycarboxylic acid cement dispersant according  
 to claim 1,  
 wherein the polycarboxylic acid cement dispersant  
 10 comprises a polycarboxylic acid polymer having  
 a polyoxyalkylene ester constituent unit (I) represented  
 by the following general formula (1):



(wherein  $\text{R}^1\text{O}$  may be the same or different and each represents  
 an oxyalkylene group containing 2 to 18 carbon atoms;  $m^1$   
 represents the average molar number of addition of the  
 20 oxyalkylene groups and is a number of 100 to 200; and  $\text{R}^2$  represents  
 a hydrogen atom or a hydrocarbon group containing 1 to 3 carbon  
 atoms), and

a carboxylic acid constituent unit (II) represented by  
 the following general formula (2):



(wherein  $\text{R}^3$  represents a hydrogen atom, a methyl group or  $-\text{COOM}^2$ ;  
 30 and  $\text{M}^1$  and  $\text{M}^2$  may be the same or different and each represents  
 a hydrogen atom, a monovalent metal, a divalent metal, ammonium  
 or organic ammonium).

3. A method of producing a concrete product  
 35 which comprises a process of curing under a condition of

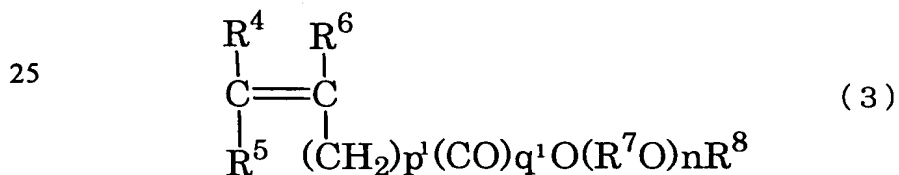
a temperature of 30°C or more, using the polycarboxylic acid cement dispersant according to claim 1.

4. A method of producing a concrete product  
 5 which comprises a process of curing under a condition of a temperature of 30°C or more, using the polycarboxylic acid cement dispersant according to claim 2.

5. A method of producing a concrete product  
 10 which comprises a process of curing by covering a periphery of a formwork with an insulating material, using the polycarboxylic acid cement dispersant according to claim 1.

6. A method of producing a concrete product  
 15 which comprises a process of curing by covering a periphery of a formwork with an insulating material, using the polycarboxylic acid cement dispersant according to claim 2.

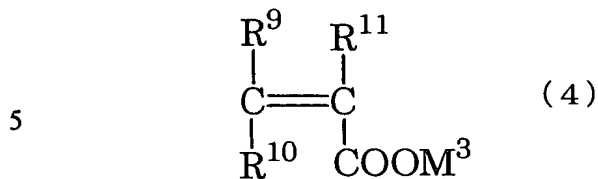
7. A method of producing a concrete product  
 20 which makes use of a copolymer derived by using monomer components comprising  
 a monomer (A) represented by the following general formula (3):



(wherein R<sup>4</sup>, R<sup>5</sup> and R<sup>6</sup> may be the same or different and each represents a hydrogen atom or a methyl group; p<sup>1</sup> represents a  
 30 number of 0 to 2; q<sup>1</sup> represents a number of 0 or 1; R<sup>7</sup>O may be the same or different and each represents an oxyalkylene group containing 2 to 18 carbon atoms; n represents the average molar number of addition of the oxyalkylene groups and is a number of 2 to 300; and R<sup>8</sup> represents a hydrogen atom or a hydrocarbon  
 35 group containing 1 to 30 carbon atoms),

a monomer (B) represented by the following general formula

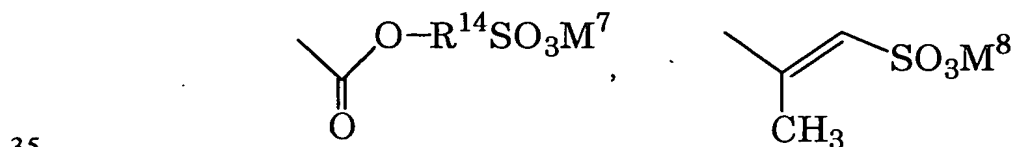
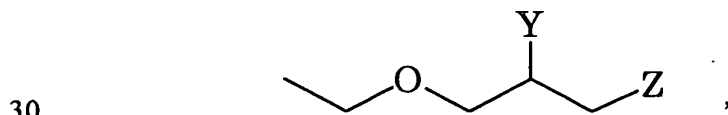
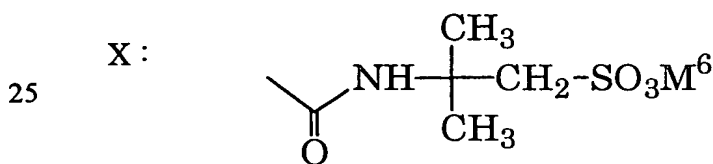
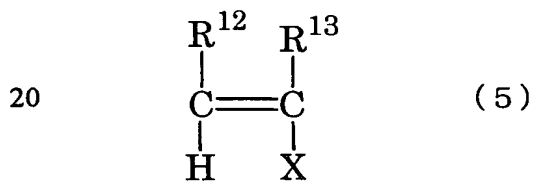
(4):



(wherein  $\text{R}^9$  and  $\text{R}^{10}$  may be the same or different and each represents a hydrogen atom, a methyl group or  $-\text{COOM}^4$ , provided that  $\text{R}^9$  and  $\text{R}^{10}$  does not simultaneously represent  $-\text{COOM}^4$ ;  $\text{R}^{11}$  represents a hydrogen atom, a methyl group or  $-\text{CH}_2\text{COOM}^5$ , in which in the case where  $\text{R}^{11}$  represents  $-\text{CH}_2\text{COOM}^5$ ,  $\text{R}^9$  and  $\text{R}^{10}$  may be the same or different and each represents a hydrogen atom or a methyl group; and  $\text{M}^3$ ,  $\text{M}^4$  and  $\text{M}^5$  may be the same or different and each represents a hydrogen atom, a monovalent metal, a divalent metal, ammonium or organic ammonium), and

a monomer (C) represented by the following general formula

(5):



(wherein  $R^{12}$  and  $R^{13}$  may be the same or different and each represents a hydrogen atom or a methyl group; Y and Z represent a hydroxyl group or  $-SO_3M^9$ , in which in the case where Y represents a hydroxyl group, Z represents  $-SO_3M^9$ , while in the case where Y represents  $-SO_3M^9$ , Z represents a hydroxyl group;  $R^{14}$  represents an alkylene group containing 2 to 4 carbon atoms; and  $M^6$ ,  $M^7$ ,  $M^8$  and  $M^9$  may be the same or different and each represents a hydrogen atom, a monovalent metal, a divalent metal, ammonium or organic ammonium),

10        wherein the mass ratio of the monomer (C) relative to the total monomer components is not less than 0.1% by mass and not more than 35% by mass.

15        8. The method of producing a concrete product according to claim 7,

          which comprises a process of curing under a condition of a temperature of 30°C or more.

20        9. The method of producing a concrete product according to claim 7,

          which comprises a process of curing by covering a periphery of a formwork with an insulating material.

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